

## ABSTRACT OF THE DISCLOSURE

Systems and methods are described for a usage monitoring HVAC control system. A method, includes: providing a usage monitoring heating ventilation and air conditioning control system, the usage monitoring heating ventilation and air conditioning control system including a programmable digital thermostat with an on board memory; issuing personal identification numbers to each of a plurality of system users; associating each of the plurality of system users with at least one of a plurality of user types; storing the personal identification numbers in a first data structure in the on board memory; and linking each one of a plurality of entries in the first data structure by reference to at least one of a plurality of entries in a second data structure in the on board memory, the second data structure including a list of user types.

5           A method, includes: receiving a request for an additional period of heating ventilation and air conditioning system services from a requesting system user, the requesting system user composing a plurality of system users; maintaining a data structure in an on board memory of a programmable thermostat, the data structure including a list of time entries, each time entry associated with one of the plurality of system users; and updating the data structure by adding a duration in units of time to the time associated with the requesting system user. An apparatus, includes: a microcontroller; a digital temperature sensor coupled to the microcontroller; a liquid crystal display coupled to the microcontroller; a set of cursor buttons coupled to the microcontroller; an electrically erasable programmable read-only memory

10          coupled to the microcontroller; an upload capable connector coupled to the electronically erasable programmable read-only memory; a real time clock coupled to the microcontroller; and a back up power supply coupled to the real time clock. A method, includes regulating user access to an interactive user interface of a programmable thermostat, each user identified by a personal identification number associated with a user type selected from the group

15          consisting of building owners, maintenance personnel, building tenants, and manufacturers.

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